

## Art, dance, and music therapy

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At the beginning of the twenty-first century, the creative arts therapies are firmly established as an important part of complementary medicine for psychologic and physiologic illnesses. The arts therapies are present in every facet of medical practice in hospitals, hospices, other health care institutions, and private practice.

Art, dance, and music therapy, as they now are practiced, were formally organized in the twentieth century. Before that time, art, dance, and music played an informal although continuous role in eastern and western medicine.

Through the centuries, the healing nature of these creative therapies has been primarily reported in anecdotes that describe a way of restoring wholeness to a person struggling with either mind or body illness. Since the 1950s, however, there has been a trend toward descriptive and experimental research in all three fields [1].

Although art, dance, and music therapy are present in all areas of health care, the literature presently shows relatively few strictly controlled research studies. The three arts therapies will be discussed in this article primarily in the context of interventions for brain injury, cognitive dysfunction, pain, and musculoskeletal injuries.

As a registered practitioner, a therapist may work in private practice or with a medical team in a hospital or institutional setting. The advent of these trained practitioners into medical facilities has changed the nature of health care in the past century by contributing to the esthetic ambience of facilities, patient and staff well-being, and encouragement of patients to participate in the artistic process. The National Center of Complementary and Alternative

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Medicine of the National Institutes of Health recognizes the three arts therapies. In the twenty-first century, the arts therapies will assume a greater and more important role in health care as they expand a partnership with traditional medical practice.

The nature and length of this article preclude a complete report of the entire corpus of theoretical and clinical research in each of the three therapies. Examples of research in the three arts therapies within the last two decades will introduce physicians and other health care professionals to some treatment modalities offered by the three arts therapies, primarily in the areas listed above. It is strongly recommended that those interested in more information on any or all of the arts therapies consult the appropriate professional association databases as well as resources cited in the text and at the end of this article.

### **Art therapy**

Art therapy, developed from the theories of Sigmund Freud and Carl Jung, led to a new understanding of the personality and another perspective about approaching the genesis of illness. Art therapy as a field began simultaneously in the United States and The United Kingdom. Books on art therapy and its application with psychiatric patients in the 1940s and 1950s contributed to the theoretical and clinical materials of the field. Volunteers in mental hospitals in the 1940s and 1950s convinced psychiatrists of the value of art therapy with patients.

Art therapy was first organized in the 1930s. At the beginning of the twentieth century, psychiatrists studied the artwork of patients to see if there was a link between the art and the illness of their patients. At this same time, art educators were discovering that the free and spontaneous art expression of children represented both emotional and symbolic communications. Since then, the profession of art therapy has grown into an effective and important method of communication, assessment, and treatment with many populations [2].

The American Art Therapy Association (AATA) was founded in 1969 and currently represents about 4750 individual members in the following categories: professional, student, associate, contributing, and retired. An elected 11-member board governs the members of the AATA. There are affiliate chapters throughout the United States that hold meetings and conduct activities promoting art therapy [3].

### *Treatment*

#### *General*

Rubin's book *Art Therapy: An Introduction* [4] provides a history of art therapy and presents many aspects of the field in detail. The relatively new field of medical art therapy may help a patient synthesize and integrate

issues such as pain, loss, and death [5]. Research in the last decade includes treatments for psychologic problems (affecting the mind primarily), and those for physiologic illnesses (affecting the body primarily).

### *Psychologic problems*

*Brain injury.* A dissertation and research study written by David in 2001 explored the role of artistic expression in the treatment of people with traumatic brain injury [6]. Patients in the three-case study suffered from traumatic brain injury. The patients' involvement in art therapy was compared with their neuropsychologic and cognitive status as assessed in their behavior, verbalizations, and standard neuropsychologic evaluations. All three patients experienced improvement in attention, concentration, memory, and organization. It is recommended that art be used in clinical practice for evaluating and treating deficits caused by brain injury.

Computer art therapy programs provide appropriate means of expression of anger and frustration in patients who have suffered brain injury, cerebral vascular accident, or those who are quadriplegics. Computer art therapy increases patients' self esteem and motivation [7]. Although there are certain common characteristics in the artwork of brain-injured persons, different types of neurologic impairments may result in different characteristics. Art activities remediate or compensate for perceptual dysfunctions. Results from a study with learning disabled children showed that their involvement with 28 art tasks over a 7-week period significantly improved the participants' drawing scales for a self portrait. There was also a significant increase in the patients' scores on the Illinois Test of Psycholinguistic Abilities in areas of visual reception, visual closure, visual associations, visual memory, manual expression, and receptive/expressive tasks [8].

*Cognitive functioning.* An improvement in the aesthetic quality of the environment of a functionally dependent person with traumatic brain injury showed a corresponding positive effect in the attitudes and behaviors of the resident's family system [9]. A neuropsychologic art therapy model based on a cognitive interaction theory has been proposed with an emphasis on environmental factors and the need to develop approaches that incorporate an understanding of cognitive, psychologic, and neurologic processes. This research study includes a useful bibliography spanning nearly 2 decades of research about art therapy and neuropsychology [10].

*Dementia.* A 2002 study by Wood reported that six patients with AIDS-related dementia of brain impairment received art therapy. The report shows how the therapy affected the participants' health and channels of communication [11]. Art therapy may indicate the presence of psychosis or organic brain damage and also provide a structured activity with which the patients can cope and express themselves even when language is largely lost. It is critical that the artistic medium and the type of artwork be matched

with the patient's capacities. This process has been described in six 68- to 84-year-old patients with various types of dementia [12]. It is through the analysis of the artwork that psychosis or organic brain damage may be seen.

*Cerebral vascular accident.* The making of visual images may be helpful to patients suffering from a stroke and resultant impaired speech. The process of making the visual images helps exercise the visual-motor functioning of these patients [13]. Clay has been used as a therapeutic tool in patients who have sustained cerebral vascular accidents and femur neck fractures to combine sensorimotor activities of the upper limbs with social interaction [14].

*Depression.* In a 1987 study, 11 of the 15 items of the Family Drawing Depression Scale (FDDS) significantly differentiated between depressed and nondepressed patients [15]. The FDDS was the pre- and posttest in this study. Following completion of treatment through art therapy, the 10 patients whose pretests strongly suggested depression significantly improved scores on 8 of 15 items in the posttest.

*Bereavement.* Twenty-seven developmentally disabled young adults and staff were helped by art therapy to cope with the sudden death of a group member. Art therapy was combined with religious rituals and individual counseling in an 8-week intervention [16]. Case studies in 1994 showed that ghost imagery was used effectively for children who recently lost a loved one [17]. The deceased became detected and the group served as the transitional object. Parent counseling was included in the project.

*Pain management.* Pain modulation in terminally ill patients in a hospice setting occurred by using art and music therapy interventions to shift the patient's focus from pain [18]. Art therapy has been used to distract burn patients from their pain [19]. These two reports in pain modulation were case studies in which the results were given as anecdotal records. Art therapy may be also useful in treating the emotional strain associated with severe chronic pain. A multimode inpatient treatment program for a woman in her 60s alleviated her chronic pain [20]. Sensitivity to the relationship between headaches and daily life activities such as art helps develop effective pain management [21].

*Sexual abuse.* A clay art therapy group provided participants with a place to express terror and rage caused by sexual abuse [22]. Art and movement therapy were used to help adult survivors of childhood sexual abuse transform the earlier life experience into the language of an older person. Each task in the study was carefully chosen to match the phase of therapy and to meet one of three goals: containment, exploration, or expression [23].

*Pediatrics.* Drawing a story may help children with emotional problems who are unable or unwilling to reveal aspects of themselves in discussion. The game is a device in which the therapist can learn about the child's personality and gain diagnostic information [24]. Children undergoing temporary physical disturbances or chronic diseases display in artwork the pain and frustration affecting them and their self-evaluation [25].

#### *Physiologic problems*

*Chronic fatigue immune dysfunction syndrome.* A male artist who had chronic fatigue immune dysfunction syndrome was able to alter his suffering from the illness and a related neurally mediated hypotension by changing the imagery and style of his paintings [26].

*AIDS.* An analysis of over 600 HIV patients' artwork reveals each person's stage of illness, personality style, and previous life experience. HIV patients were able to express in their artwork the anger, confusion, depression, guilt, and stigmatization that often accompany HIV. Interventions were based on psychoneuroimmunologic research [27]. Psychoneuroimmunology is a field in which the mind–body connection is used to assist patients in gaining control over their autonomic system functions. The approach is often used in reducing high blood pressure, assuaging pain, lowering tension through imagery, suggestion, music, calming environment, and the like.

### **Dance therapy**

The American Dance Therapy Association (ADTA), founded in 1966 by 76 charter members, is the psychotherapeutic use of movement as a process that furthers the emotional, cognitive, social, and physical integration of the individual [28]. Dance/movement therapy uses movement and the body combined with skills of psychotherapy, counseling, and rehabilitation to help people with different needs [29]. It was developed in the 1940s, 1950s, and 1960s under the continued influence of psychodynamic psychotherapy [29]. The importance of the body in treating mental disorders also colored the development of dance/movement therapy [30,31].

The ADTA has an 18-member board of directors and various committees [28]. The ADTA includes more than 1200 professional and nonprofessional members and sponsors annual conferences as well as the formation of regional groups, seminars, workshops, and meetings throughout the year [32].

#### *Treatment*

##### *General*

*The Handbook of Inquiry in the Arts Therapies* reviews the relationship between research and practice in the arts and covers dance and movement therapy studies from 1940 to 1990 [33]. An annotated bibliography includes

clinical, theoretical, and other research material in the field of dance/movement therapy. The information covers adolescent disorders, anxiety, childhood illnesses, eating disorders, family, geriatrics, mood disorders, neuroses, personality disorders, physical and sexual abuse, schizophrenia, somatic disorders, substance abuse, and traumatic brain injury [34].

### *Psychologic problems*

*Schizophrenia.* Patients may be able to express in movement feelings that they cannot put into words [35]. Movement therapy may be a venue for tapping into a child client's inner world [36] and may also concentrate on feelings rather than symptoms [37].

*Mindpsyche.* Using Winnicott's concept of mindpsyche, a discussion among the members and leader of a dance therapy group discusses why certain moments in the dance experience feel simultaneously frightening and exciting. The improvisatory nature of the experience enables participants to reach a level of arousal that produces a momentary integration of feelings, thoughts, and behavior that others can observe. Mindpsyche means a state in which the soma has been drawn into the mind, which, in turn, prevents the person of the natural mutual interrelation between psyche and soma [38].

*Deficits of self.* Deficits of self include disorders such as schizophrenia, narcissism, and schizoid and paranoid illnesses. Dance therapy is one of the creative arts therapies used to help a patient organize or synthesize affective issues that include abandonment, rage, sexual trauma, loss, grief, and pain [39].

*Depression.* Depression and anxiety may be present in adults with mental retardation. Range of motion dance was used in a dissertation study with 23 participants over a 16-week period [40]. Symptoms of depression and anxiety decreased and work productivity increased at the midpoint of the first treatment period and continued throughout the duration of the study.

*Cerebral vascular accident.* Sixty elderly people who suffered from traumatic brain injury and effects of a stroke were assigned to an experimental group, while 40 elderly people were assigned as controls. Two 45-minute movement/dance therapy interventions were given each week for a period of 5 months. Pre- and posttests, including physical function tests, targeted differences between groups. The results indicate that dance/movement therapy enhanced physical, psychologic, and cognitive functioning of those in the experimental group [41].

*Anxiety.* A meta-analysis published in 1996 suggests that dance/movement therapy may help children, psychiatric patients, and elderly persons with

varying disorders, anxiety in particular. It appears that adults and adolescents benefit more from dance/movement therapy than children [42].

### *Physiologic problems*

*Eating disorders.* Dance/movement therapy may positively affect body image in the context of eating disorders. It may also promote the creative process and enhance healing capacity with activities such as exploring tension and relaxation through movement, and connecting these movements to certain times in life. In addition, dance/movement therapy can enhance self-awareness, including the ability to sense and feel emotions and other sensations such as hunger, satiety, tension, and relaxation [43].

Movement may also be a way to restore the dialog between the mind and the body and create a balance between them [44]. The dance/movement therapy technique of Blanche Evan is one in which a psychologic approach to the unconscious and conscious processes is combined with body-based and life-oriented interventions through dance, movement, and verbalization. The method is especially helpful for women who have eating disorders [45]. Movement may be a primary influence on the development and change in body image. In individual and group work, dance/movement therapy may be used to help clients who have eating disorders clarify their body image [46].

*Motor development in children.* Imagery and improvisation may be useful in helping school children strengthen the bond between creativity and motor development. Movement education helps normal and mentally handicapped children develop creative and self expression and positive body image [47]. Particularly useful when verbal communication is blocked, dance therapy can channel tension toward bodily integration, appropriate affect, insight into behavior, and improved social interaction because it combines principles from bioenergetics and Gestalt therapy while emphasizing body activity [48].

*Range of motion.* Occupational therapy is an important intervention for elderly people because it promotes an active and productive lifestyle. The Oxford Health Plans of New York are one group that offers cost-effective programs to elderly people. Tai Chi, for example, is offered under the range of motion dance program. Inactivity is one leading cause of morbidity and mortality among older persons. Occupation therapy programs for older people include dance/movement therapy interventions [49].

Dance/movement therapy has been used to increase range of motion in elderly persons. In a study by Scott and colleagues [50], participants between the ages of 64 and 85 presented various impairments associated with aging. Participants were pre- and posttested on variables including range of motion, activities of daily living, and self esteem. As discussed earlier, dance/movement therapy has been useful in improving cognitive functioning of older adults who have sustained neurotraumatic injuries.

*Sexual abuse.* Dance therapy has been used to deal with problems of self concept and symptoms of shame and trauma in sexually abused adolescent girls living in an institution [51]. In young children, sexual abuse may result in distorted body image, dissociative disorders, low self esteem, behavioral problems, eating disorders, and self mutilation. These six variables may be addressed in dance therapy interventions.

## **Music therapy**

Music and medicine have been partners from the beginning of western medical practice [52]. Ancient physicians such as Hippocrates and Galen upheld strongly the idea of treating the whole person rather than addressing discrete symptoms. It was probably after the Age of Enlightenment that emphasis on specialization appeared and complementary and alternative treatments lost some importance in traditional medical practice. Nevertheless, music is mentioned in physician records and notes throughout the eighteenth and nineteenth centuries [52]. *Music therapy*, as the term is used today, developed during World War II. Overcrowded conditions in military hospitals provided an impetus for inviting adjunctive therapies into these facilities [52].

The National Association for Music Therapy (NAMT) was organized in 1950 to standardize training and promote unity among those who were already involved as volunteers and specialists using music with patients, particularly in hospitals with convalescent veterans [53]. Minimum requirements for undergraduate training were specified in the January 1953 issue of the *Bulletin of the NAMT* [54]. The American Medical Association acknowledged the position of music therapy by inviting the NAMT in May 1959 to send a representative to a meeting of the American Medical Association Joint Committee to Study Paramedical Areas in Relation to Medicine [52].

Both the NAMT and the American Association for Music Therapy, which was organized in 1971, were brought together with the creation in 1998 of The American Music Therapy Association (AMTA), whose purpose is the development of the therapeutic use of music in rehabilitation, special education, and community settings. The AMTA is governed by a 14-member executive board and includes 11 standing committees. There are more than 4000 members in the organization. Music therapists who have completed all requirements in an approved training course and then successfully pass a national examination may apply for registration in the AMTA [55].

## *Treatment*

### *General*

*Music healing* is a term that includes the fields of music therapy and music medicine. Music therapy has been formally organized as a profession since



the 1950s. Music medicine has evolved in its own right in the last 20 years. In 1982, the International Society for Music in Medicine was founded in Lüdenscheid, Germany. Three volumes of a series called *MusicMedicine* [56–58] and peer-reviewed research articles in *The International Journal of Arts Medicine* [59] illustrate the collaboration of musicians and physicians in research studies. The contributions of music therapy and music medicine to arts therapy research in the last half century have been significantly greater in scope and quantity than those of art and dance therapies.

### *Psychologic treatments*

*Brain injuries.* For patients in the early stages of severe carcinocerebral trauma, a preverbal, emotionally focused tonal language—that is, music based on chordal tones of the diatonic system—usually is capable of reaching the still healthy sections of an individual, because it is precisely that type of music and harmony to which the individual has become accustomed. Therefore, music therapy can in these circumstances make contact with the seemingly nonresponsive patient and restimulate fundamental communication competencies and experience at the emotional, social, and cognitive levels. There are even reports of such musical interventions reaching patients who are in a comatose state [60]. Music therapy may help children with severe traumatic brain injuries emerge faster from a coma and then orientate. Outcome measures in this study showed changes in heart rate followed by orienting to sounds and vocalizations and, later, singing songs, which then preceded speech recovery [61]. A musician who suffered amusia as a result of a stroke was treated with a componential approach to cognitive functioning, whereby arbitrary divisions between anterior and posterior brain structures are avoided and replaced by integrated, functional networks that can involve more than one lobe of the brain by way of cortical and subcortical connections [62].

When the intact neural pathways and cerebral areas of people are brain damaged, language and music are used therapeutically with greater effect than when therapists use language alone. Numerous reports from music therapists describe this phenomenon, although hard data are not available [63]. An extensive bibliography of recent research on music therapy and neurorehabilitation offers 111 references covering music therapy, brain damage and disorders, and cerebral vascular accidents [64].

Music therapy may improve mood and social interaction among patients who have sustained acute traumatic brain injury and stroke [65]. Music may also be the ideal domain for exploring the brain's ability to perform complex cognitive tasks [66].

*Attention deficit disorder.* The *MusicMedicine* study showed that 70% of children who have attention deficit disorder and who received neurofeedback training with selected background music (instrumental music by

Mozart) significantly reduced targeted behaviors such as inattention, impulsivity, and social skills when compared with children who had the neurofeedback training alone. The music had consistent patterns of 8, 10, or 12 beats, with conjunct melodies, frequent use of primary chords, and slow harmonic rhythm [67].

*Biofeedback and music.* Biofeedback training may be enhanced by the use of selected music. Effects on the autonomic system through combined psychoneuroimmunology techniques and music can affect such measures as heart rate, blood pressure, and stress hormone production [68–70].

*Pain management.* Snyder and Chlan's article in the *Annual Review of Nursing Research* provides 98 references to music therapy and patient pain and stress reduction [71]. The article covers the uses of music therapy in all aspects of patient care and offers the reader an excellent overview of the penetration of music therapy in nursing practice.

A pilot study showed that vibration-supported music therapy has been used to reduce pain and enhance relaxation in persons who have paraplegia or tetraplegia. Autonomic nervous system variables correlated with relaxation and in addition pointed to an activating impact of the therapy chosen. Outcome measures included fingertip temperature, electrodermal activity, heart rate, and respiration frequency [72].

Improvised music, because it is immediate and intimate, can result in higher patient empathy and imagery entrainment. Entrainment means the attraction of one dynamic system for another. Nature may have a preference for the most efficient energy state. A recent study shows the relationship between music-mediated imagery, catharsis, and disease [73]. It has been proposed that more interdisciplinary studies be conducted by music therapists and professional health care workers [74].

Music played throughout the postanesthesia care unit stage may positively affect the pain experience and improve patient comfort during surgery [75]. There are currently music listening programs in surgical sites throughout the Intermountain Health Care hospitals in Salt Lake City, Utah: Alta View, Latter Day Saint (LDS), The Orthopedic Specialty Hospital, Intermountain Surgical Center, and Cottonwood facilities. Patients are advised upon admission that surgical patients who listen to music during their time in the hospital are more relaxed, experience less pain, and are not bothered by unfamiliar noises around them. Music and relaxation were used to decrease postoperative pain in abdominal surgery patients, who, although they do not always receive relief from opioids, may experience some side effects. More complete relief was found with adjuvant interventions of relaxation, music, and their combination [76].

The management of pain during burn care is of primary importance; pain can be both psychologic as well as physiologic. Music, an element of normal

life, can be easily adapted for the needs of individual patients. Music therapy has been used as a successful distractor with burn patients [77].

*Musculoskeletal injuries.* Rhythmic auditory cues can facilitate gait performance in patients who have suffered a stroke [78]. Event-related brain potentials were investigated as indicators of the neural correlates of the process of translating rhythmic acoustic stimulus patterns into synchronized rhythmic movement responses. Mechanisms other than feedback of synchronization errors are responsible for coordinating rhythmic–motor function to rhythmic–external stimuli, and more continuous textured stimuli enhance the stability in matching the external rhythm [79]. Rhythmic auditory stimulation may be used as an entrainment and therapy technique for positive effects on the gait of stroke patients as well as patients who have Parkinson’s disease [80]. Distraction techniques, including music, are an effective adjunct to analgesia for children who have musculoskeletal pain in an emergency department setting [81].

*Pediatrics.* Music therapy can decrease anxiety in children who have cancer. The music therapist may actually accompany the child to treatments to teach relaxation strategies that help the patient cope better with stress and pain [82].

Music therapy appears to soothe premature infants, promote language development, and enhance neurologic maturation in these at-risk babies [83]. The rhythm of human life begins in the womb, where appropriate musical stimuli may have a lasting influence on the developing fetal brain and, postnatally, on the cognitive functions and behavior responses of the maturing child. An extensive bibliography accompanies this study [84].

## Summary

Art, dance, and music therapies have penetrated all areas and populations of the health care system in western medicine. The corpus of research in music therapy and music medicine contains the largest number of studies in the areas of brain injury, cognitive dysfunction, pain management, and musculoskeletal injuries. Art therapy has produced studies in aesthetic environments, sexual abuse, and pediatrics. Dance therapy is proving especially important for elderly people who wish to maintain or increase range of motion and agility. Four recommendations follow:

1. Uniform definitions of terms describing disorders and dysfunctions will help in comparing research studies and ascertaining the effects of the arts therapies on behavior [85,86].
2. Control groups should be in all future research.
3. Future research should include some interdisciplinary projects in which musicians and health care professionals collaborate.

4. University experimental research programs in the arts therapies should create specialties. This will ensure continuity and continued examination of a particular disorder or population and thus result in a corpus of literature on the topic.

Art, dance, and music therapies are an important part of modern health care. It is hoped that the research in these therapies will one day be commensurate with the successful clinical applications in hospitals, institutions, and private practice.

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